8-25-05

EV549896547

PTO/SB/21 (08-03)
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OIPE AUG 24 2005 PATENT & TRADEMARK OFFICE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/848,706
Filing Date	5/2/2001
First Named Inventor	Fan Yang
Group Art Unit	2142
Examiner Name	Kelvin Y Lin
Attorney Docket Number	MS1.0716US

Total Number of Pages in This Submission

ENCLOSURES (check all that apply)

- ☒ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment / Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Documents
- ☐ Response to Missing Parts/ Incomplete Application
  - ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s)
- ☐ After Allowance Communication to Group
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☒ Appeal Communication to Group ***(Appeal Notice, Brief, Reply Brief)***
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) *(please identify below):* Return Receipt Post Card

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual Name	Emmanuel A. Rivera/Reg. No. 45760
Signature	
Date	August 24, 2005

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Typed or printed name	Laurie Morgan		
Signature	Laurie Morgan	Date	8/24/05

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Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($) 500.00

Complete if Known	
Application Number	09/848,706
Filing Date	5/2/2001
First Named Inventor	Fan Yang
Examiner Name	Kelvin Y Lin
Art Unit	2142
Attorney Docket No.	MS1 0716US

METHOD OF PAYMENT (check all that apply)

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☑ Deposit Account Deposit Account Number: 12-0769 Deposit Account Name: Lee & Hayes, PLLC

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	_____ x	50 =	_____

HP = highest number of total claims paid for, if greater than 20

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	_____ x	200 =	_____

HP = highest number of independent claims paid for, if greater than 3

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____ / 50 =	_____ (round **up** to a whole number) x	_____ =	_____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	_____
Other: Appeal Brief	500.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 45760	Telephone (509) 324-9256
Name (Print/Type)	Emmanuel A. Rivera		Date 8/24/05

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OIPE JC42
AUG 2 4 2005
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EV549896547

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 09/848,706
Filing Date 5/02/2001
Inventorship ..... Zhang et al
Assignee ..... Microsoft Corporation
Group Art Unit 2142
Examiner ..... Kelvin Y. Lin
Attorney's Docket No. MS1-716US
Title: An Architecture and Related Methods for Streaming Media Content Through Heterogeneous Networks

APPEAL BRIEF

To: Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

From: Emmanuel Rivera (Tel. 509-324-9256; Fax 509-323-8979)
Customer No. 22801

Pursuant to 37 C.F.R. § 41.37, Appellant hereby submits an appeal brief within the requisite time from the date of filing the Notice of Appeal, which was filed on June 1, 2005; two months, along with a one-month extension as provided by 37 C.F.R. § 41.37(e). Accordingly, Appellant appeals to the Board of Patent Appeals and Interferences seeking review of the Examiner's rejections.

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(1) Real Party in Interest

The real party in interest is Microsoft Corporation, the assignee of all right, title and interest in and to the subject invention.

(2) Related Appeals and Interferences

Appellant is not aware of any other appeals, interferences, or judicial proceedings that will directly affect, be directly affected by, or otherwise have a bearing on the Board's decision to this pending appeal.

(3) Status of Claims

Claims 1-33 stand rejected and are pending in this Application. The rejections of claims 1-33 are appealed. Claims 1-33 were originally submitted and hence bear the designator "(original)".

Claims 1-33 are set forth in the Appendix of Appealed Claims on page 17.

(4) Status of Amendments

The Final Office Action, which is the subject of this Appeal, was mailed March 18, 2005 (herein the "Final Office Action").

Appellant filed a Notice of Appeal on June 1, 2005. The Office mailed an Advisory Action on July 6, 2005.

No amendments were made to the claims subsequent to the Final Office Action.

(5) Summary of Claimed Subject Matter

A concise explanation of each of the independent claims is included in this Summary section, including specific reference characters and reference to the specification. These specific reference characters are examples of particular elements of the drawings for certain claimed embodiments. It is to be appreciated and understood that the claims are not to be limited to solely the elements corresponding to these reference characters and that this section is provided to comply with the requirement of 37 CFR § 41.37(c)(1)(v).

Independent claim 1 recites a system (Fig. 1) comprising a network server (102 and 104 of Fig. 1, and described in further detail as 200 in Fig. 2), to provide media content on request through a wireline network (106 of Fig. 1); a wireless host (120 of Fig. 1), to request media content through a wireless network (108 of Fig. 1); and a network gateway (112 and 118 of Fig. 1, and further described by Fig. 4), coupled to each of the server and the wireless host, to establish a communication channel (described on page 18, lines 304) from the server to the wireless host through both the wireline network and the wireless network, wherein the communication channel includes a transport layer protocol (described beginning on page 20, line 24) with control parameters for each of the wireline network and the wireless network (described on page 21, lines 3-6).

Independent claim 19 recites a method comprising receiving a request from a wireless host for content available from a network server (block 602 of Fig. 6, described on page 23, lines 5-6); establishing a communication channel to service the request between the wireless host and the network server over a wireless network and a wireline network coupled to the server (described on page

23, lines 7-8); and adjusting transmission characteristics in one or more of the wireline network and/or the wireless network to improve transmission quality based, at least in part, on one or more control parameters of a transport layer protocol of the communication channel which distinguish wireline transmission problems from wireless transmission problems (block 616 of Fig. 6, and described further in Fig. 7).

Independent claim 30 recites a transport layer protocol (described beginning on page 20, line 24) to facilitate streaming of media content across heterogeneous networks, the protocol comprising a congestion parameter (described on page 21, lines 16-18), which provides a receiving network element with an measure of congestion incurred in transmission within the network; a fading parameter (described on page 21, lines 22-23) which, when asserted, provides a receiving network element with an indication that a communicatively coupled wireless host just emerged from a fading condition; and a BER parameter (described on page 21, lines 19-21), which provides a receiving network element with an measure of bit error rate incurred in transmission within a wireless network.

Independent claim 33 recites a transport layer protocol (described beginning on page 20, line 24) to facilitate streaming of media content across heterogeneous networks, the protocol generated in accordance with the following acts: providing a server computer (102 and 104 of Fig. 1, and described in further detail as 200 in Fig. 2) in a communications with a communications network (described on page 9, lines 10-13); receiving data using the protocol by way of the communications network (described on page 23, lines 21-16), the protocol

comprising (the following elements "parameters of the protocol" are identified in claim 30) a congestion parameter, which provides a receiving network element with an measure of congestion incurred in transmission within the network; a fading parameter which, when asserted, provides a receiving network element with an indication that a communicatively coupled wireless host just emerged from a fading condition; and a BER parameter, which provides a receiving network element with an measure of bit error rate incurred in transmission within a wireless network.

(6) Grounds of Rejection to be Reviewed on Appeal

The Final Office Action of March 18, 2005 rejected claims 1-5, 8-15, 18-21, and 25-33 under 35 U.S.C. 102(e) as being anticipated.

The Final Office Action of March 18, 2005 rejected claims 6-7, 16-17, and 22-24 under 35 U.S.C. 103(a) as being unpatentable.

The Advisory Action of July 6, 2005 maintained the rejections.

(7) Argument

§102 REJECTIONS

Claims 1-5, 8-15, 18-21, and 25-33

Claims 1-5, 8-15, 18-21, and 25-33 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. published application 2001/0032232 to Zombek et al (Zombek).

Claims 1-5, 8-15, and 18

Appellant respectfully submits that claim 1 is not anticipated by the art of record. To anticipate a claim, the reference must teach every element of the claim (See MPEP § 2131).

Independent claim 1 recites in part "a network gateway, coupled to each of the server and the wireless host, to establish a communication channel from the server to the wireless host through both the wireline network and the wireless network, wherein the communication channel includes a transport layer protocol with control parameters for each of the wireline network and the wireless network".

Zombek teaches a messaging system that includes a client device having a client application; a server having a server application, and a plurality of wireless networks. The system may support one or more wireless network access protocols by specific protocol gateways. In particular, Zombek is directed to providing communication (i.e., communicated messages) between the client application and the server application over a selected wireless network protocol through a protocol gateway independent of the selected wireless network protocol. See paragraph [0016] of Zombek.

Zombek teaches a number of protocol gateways which support different network access protocols. In particular, paragraph [0072] of Zombek recites "[a] number of the protocol gateways (PGs) 116a, 116b and 116c, collectively PGs 116, can be configured to support a specific network access protocol".

Different protocol gateways are provided for each of the network access protocols that the system supports. In particular, paragraph [0073] of Zombek

recites "For each network access protocol that the intelligent messaging network supports, a corresponding PG 116 can support that network access protocol".

Claim 1 recites "a network gateway, coupled to each of the server and the wireless host, to establish a communication channel from the server to the wireless host through both the wireline network and the wireless network".

The Office presents that the "network gateway" is taught by Zombek, citing paragraph [0021] lines 9-11 of Zombek and further pointing to Fig. 1A of Zombek. However, as discussed above, Zombek relies on multiple protocol gateways that support different network access protocols. In the Final Office Action the Office again presents Fig. 1A of Zombek and selectively quotes from paragraph [0071] the following "the communication system can be configured to support a wide variety of wired and wireless access network protocols via an access work (sic., network 114) ..." The Office then summarizes "and provides the network transparency to client and server application, which is from the server to the client through both the wireline and the wireless network"

As has been presented, Zombek relies on multiple protocol gateways which are part of network 114. In other words, network 114 includes different protocol gateways each supporting a different protocol and different communication. For example, a wireline communication will rely on a wireline protocol through a wireline protocol gateway of network 114, a wireless communication will rely on a wireless protocol through a wireless protocol gateway of network 114.

Furthermore, the Office has not addressed how Zombek teaches that one of the protocol gateways 116 to establish "a communication channel from the server

to the wireless host through both the wireline network and the wireless network" as recited in claim 1.

The Examiner seemingly relies on personal knowledge without pointing to any specific teaching. Specifically, the Examiner merely contends that "the wireless clients and the client that need to access the intelligent messaging network ... via a wired connection or dial-up line (Zombek, [0021], l.9-21)." The Examiner fails to point out where in Zombek it is taught, a single "network gateway ... to establish a communication channel form the server to the wireless host through both the wireline network and the wireless network".

According to 37 CFR §1.104(d)(2), "[w]hen a rejection in an application is based on facts within the personal knowledge of an employee of the office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons." The Examiner was requested to supply such an affidavit to support this modification of Zombek, and failed to do so.

Accordingly, Zombek does not teach every element of claim 1, and the rejection of claim 1 is therefore improper. For at least these reasons, Appellant respectfully requests that the §102 rejection of claim 1 be overturned.

Dependent claims 2-5, 8-15, and 18 depend from and comprise all the elements of claim 1. As such, dependent claims 2-5, 8-15, and 18 are allowable by virtue of their dependency on base claim 1. For at least reasons, Appellant respectfully requests that the §102 rejection of claims 2-5, 8-15, and 18 be overturned.

Claims 19-21, and 25-29

Independent claim 19 recites in part "establishing a communication channel to service the request between the wireless host and the network server over a wireless network and a wireline network coupled to the server".

The Office presents the same argument used in the rejection of claim 1, in rejecting claim 19. Applicants present the arguments presented above in support of claim 1 in support of claim 19. In particular, Applicants present that Zombek fails to teach establishing a communication channel over a wireless network and a wireline, as discussed above in support of claim 1.

Accordingly, Zombek does not teach every element of claim 19, and the rejection of claim 19 is therefore improper. For at least these reasons, Appellant respectfully requests that the §102 rejection of claim 19 be overturned.

Dependent claims 20-21, and 25-29 depend from and comprise all the elements of claim 19. As such, dependent claims 20-21, and 25-29 are allowable by virtue of their dependency on base claim 19. For at least these reasons, Appellant respectfully requests that the §102 rejection of claim s 20-21, and 25-29 be overturned.

Claims 30-32

Independent claim 30 recites in part "a fading parameter which, when asserted, provides a receiving network element with an indication that a communicatively coupled wireless host just emerged from a fading condition".

The Office presents the same arguments that are presented in rejecting claims 3, 6, and 8, in the §102 rejection of claim 30; however, there is no mention

in these arguments as to where Zombek teaches or discloses a fading parameter as recited in claim 30. Furthermore, the Examiner contends that the "fading parameter depends on the transmission frequency and the mobile unit". Claim 30 recites in the preamble "[a] transport layer protocol to facilitate streaming of media content across heterogeneous networks, the protocol comprising ..." An element of claim 30 being "a fading parameter which, when asserted, provides a receiving network element with an indication that a communicatively coupled wireless host just emerged from a fading condition".

The Final Office Action failed to point out where in Zombek it is taught "transport layer protocol ... comprising ... a fading parameter" as recited in claim 30.

According to 37 CFR §1.104(d)(2), "[w]hen a rejection in an application is based on facts within the personal knowledge of an employee of the office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons." The Examiner was requested to supply such an affidavit to support this modification of Zombek, and that Examiner failed to do so.

The Office presents in the Final Office Action that "[t]he fading parameter depends on the transmission frequency and mobile unit. It is (sic., does) not belong to the network and service. Therefore, it require (sic., requires) a restriction".

Appellant does not disagree that a fading parameter may depend on transmission frequency and a mobile unit. However, the fading parameter as

recited in claim 30 is as follows "a fading parameter which, when asserted, provides a receiving network element with an indication that a communicatively coupled wireless host just emerged from a fading condition". The fading parameter is one of several heterogeneous network transport layer protocol control parameters which enable a gateway to accurately identify the source of transmission problems. These parameters are particularly described as included in the transport protocol layer. (See Specification, pg. 21, lines 10-26).

Accordingly, Zombek does not teach every element of claim 30, and the rejection of claim 30 is therefore improper. For at least these reasons, Appellant respectfully requests that the §102 rejection of claim 30 be overturned.

Dependent claims 31-32 depend from and comprise all the elements of claim 30. As such, dependent claims 31-32 are allowable by virtue of their dependency on base claim 30. For at least these reasons, Appellant respectfully requests that the §102 rejection of claims 31-32 be overturned.

Claim 33

Independent claim 33 recites in part "[a] transport layer protocol to facilitate streaming of media content across heterogeneous networks, *the protocol generated* in accordance with the following acts: providing a server computer in a communications with a communications network; receiving data using the protocol by way of the communications network, the protocol comprising: ... a fading parameter which, when asserted, provides a receiving network element with an indication that a communicatively coupled wireless host just emerged from a fading condition".

The Office presents the same arguments that are presented in rejecting claim 1, in the rejection of claim 33; however, there is no mention in these arguments as to where the fading parameter of a protocol as recited in claim 33 is taught or disclosed.

In the Final Office Action the Office presents paragraph [0435] of Zombek as teaching that a SNTL layer provides the fading conditions. This section and Zombek in general fail to teach that a protocol is generated as recited in claim 33. The SNTL layer that is taught in Zombek is preexisting, and not generated.

Accordingly, Zombek does not teach every element of claim 33, and the rejection of claim 33 is therefore improper. For at least these reasons, Appellant respectfully requests that the §102 rejection of claims 33 be overturned.

§103 REJECTIONS

Claims 6-7, 16-17, and 22-24

Claims 6-7, 16-17, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zombek as applied to claim 1 above, and in further view of U.S. published application 2002/0097722 to Liao et al.

Claims 6-7 and 16-17

Claims 6-7 and 16-17 depend from base claim 1 and therefore comprise the element "a network gateway, coupled to each of the server and the wireless host, to establish a communication channel from the server to the wireless host through both the wireline network and the wireless network, wherein the communication

channel includes a transport layer protocol with control parameters for each of the wireline network and the wireless network".

Liao is particularly cited by the Office for its teaching of a system to identify degradation in transmission quality in a wireless network component resulting from fading and/or multipath conditions, and to issue a fading condition control parameter to the network via a transport layer protocol. Liao paragraph [0104], lines 1-11.

However, Liao provides no assistance in light of Zombek as to the recited systems of claims 6-7 and 16-17. As discussed above, Zombek teaches a number of protocol gateways, not a single network gateway. Each of the protocol gateways supports a network access protocol. (See paragraph [0073] of Zombek). Since Zombek does not teach "a network gateway ... to establish a communication channel from the server to the wireless host through both the wireline network and the wireless network, wherein the communication channel includes a transport layer protocol with control parameters for each of the wireline network and the wireless network", the "system to identify degradation in transmission quality in a wireless network component resulting from fading and/or multipath conditions, and to issue a fading condition control parameter to the network via a transport layer protocol" taught by Liao does not help.

Accordingly, a combination of Zombek and Liao is improper. For at least these reasons, Appellant respectfully requests that §103 rejection of claims 6-7 and 16-17 be overturned.

Claims 22-24

claims 22-24 depend from base claim 19 and therefore comprise the element "establishing a communication channel to service the request between the wireless host and the network server over a wireless network and a wireline network coupled to the server".

The Office presents the same arguments in rejection of claims 6-7 and 16-17 in rejecting claims 22-24. Applicants present the arguments in support of claims 22-24 in support of claims 6-7 and 16-17.

Accordingly, a combination of Zombek and Liao is improper. For at least these reasons, Appellant respectfully requests that the §103 rejection of claims 22-24 be overturned.

Conclusion

Appellant respectfully submits that all of the Examiner's rejections have been traversed. As such, Appellant respectfully submits that all of the claims are in condition for allowance.

Respectfully Submitted,

Dated: 8/24/05

By: _____

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(8) Appendix of Appealed Claims

Claim 1 (Original): A system comprising:

a network server, to provide media content on request through a wireline network;

a wireless host, to request media content through a wireless network; and

a network gateway, coupled to each of the server and the wireless host, to establish a communication channel from the server to the wireless host through both the wireline network and the wireless network, wherein the communication channel includes a transport layer protocol with control parameters for each of the wireline network and the wireless network.

Claim 2 (Original): A system according to claim 1, wherein the transport layer protocol of the communication channel enables the network gateway to distinguish transmission problems occurring within either network component of the communication channel.

Claim 3 (Original): A system according to claim 1, wherein the network server comprising:

a transmission rate controller to receive media content from an application and control transmission over the wireline network; and

a congestion controller , to receive congestion control indications from the network gateway in the transport protocol, estimate the available bandwidth over the network, and to instruct the transmission rate controller to adjust the transmission rate accordingly.

Claim 4 (Original): A system according to claim 1, the network server further comprising:

an application error control interface, to receive a bit-error rate (BER) control parameter from the network gateway via the transport protocol denoting the bit-error rate (BER) experienced at the wireless host; and

a partial checksum generator, responsive to the application error control interface, to generate checksum of a dynamically selected amount of the requested content for inclusion in at least a subset of transmitted frames for error control purposes based, at least in part, on the received BER control parameter.

Claim 5 (Original): A system according to claim 4, wherein the partial checksum generator includes more data in the partial checksum when the BER increases, less data when the BER decreases.

Claim 6 (Original): A system according to claim 1, the wireless host comprising:

a fading timeout monitor, to identify degradation in transmission quality in the wireless network component resulting from fading and/or multipath conditions, and to issue a fading condition control parameter to the network gateway via the transport layer protocol.

Claim 7 (Original): A system according to claim 6, wherein the fading condition control parameter includes an indication to the network gateway of what frame to commence retransmission of content lost due to fading and/or multipath.

Claim 8 (Original): A system according to claim 1, the wireless host comprising:

a header analyzer, to analyze at least a partial checksum in a header of a received frame of media content to determine whether an accurate frame was received; and

a bit-error rate (BER) controller, coupled to the header analyzer, to generate a BER control parameter for the network gateway via the transport layer protocol denoting a running average of accurately received frames.

Claim 9 (Original): A system according to claim 1, the network gateway comprising:

a congestion monitor, to monitor congestion of the communication channel, and to issue a congestion control parameter to the network server via the transport layer protocol.

Claim 10 (Original): A system according to claim 1, the network gateway comprising:

a buffer, to receive frames of media content from the network server via the wireline network component of the communication channel, and to selectively

provide frames of the received media content to the wireless host via the wireless network component of the communication channel.

Claim 11 (Original): A system according to claim 10, the network gateway further comprising:

a weighted scheduling module, coupled to the buffer, to schedule delivery of media content from the buffer to the wireless host based on their priority.

Claim 12 (Original): A system according to claim 10, the network gateway further comprising:

one or more retransmission modules, coupled to the buffer, to receive one or more of a negative acknowledgment (NACK) control parameter and/or a fading control parameter and determine whether the requested retransmission of one or more frames can be accommodated.

Claim 13 (Original): A system according to claim 12, wherein the one or more retransmission modules determine whether the requested retransmission may occur by determining whether a start frame, identified within the received control parameter, is available within the buffer.

Claim 14 (Original): A system according to claim 1, wherein the transport layer protocol comprises:

a congestion control parameter, generated by the network gateway in response to congestion detected along the communication channel.

Claim 15 (Original): A system according to claim 14, wherein the congestion control parameter is sent to the server for purposes of throttling transmission of the media content.

Claim 16 (Original): A system according to claim 1, wherein the transport layer protocol comprises:

a fading control parameter, generated by a wireless host to provide an indication to the network gateway that the wireless host has just concluded a period of fading.

Claim 17 (Original): A system according to claim 16, wherein the network gateway retransmits one or more frames of media content commencing at a frame denoted by a received fading control parameter.

Claim 18 (Original): A system according to claim 1, wherein the transport layer protocol comprises:

a negative acknowledgment (NACK) control parameter, generated by the wireless host to denote one or more frames of media content received with an unacceptably high bit-error rate (BER).

Claim 19 (Original): A method comprising:

receiving a request from a wireless host for content available from a network server;

establishing a communication channel to service the request between the wireless host and the network server over a wireless network and a wireline network coupled to the server; and

adjusting transmission characteristics in one or more of the wireline network and/or the wireless network to improve transmission quality based, at least in part, on one or more control parameters of a transport layer protocol of the communication channel which distinguish wireline transmission problems from wireless transmission problems.

Claim 20 (Original): A method according to claim 19, wherein the transport layer protocol includes a control parameter to denote congestion in the communication channel.

Claim 21 (Original): A method according to claim 20, further comprising:

instructing a server of the requested content to reduce transmission rate to alleviate congestion identified in the wired network component in response to receiving a congestion control parameter.

Claim 22 (Original): A method according to claim 19, wherein the transport layer protocol includes a control parameter to denote a fading condition in a wireless network component of the communication channel.

Claim 23 (Original): A method according to claim 22, further comprising:

calculating a delay measure when a fading condition control parameter is received; and

retransmitting content from a buffer to the wireless host starting at a frame denoted by the fading condition control parameter if the delay measure does not exceed a threshold.

Claim 24 (Original): A method according to claim 23, wherein calculating the delay measure comprises:

identifying the start time of the frame denoted in the fading condition control parameter; and

subtracting the start time from the current project time to quantitatively measure what kind of delay would be incurred by retransmitting frames lost during the fading condition.

Claim 25 (Original): A method according to claim 19, wherein the transport layer protocol includes a negative acknowledgment (NACK) control parameter to denote that a frame was dropped due to a high bit-error rate (BER) condition.

Claim 26 (Original): A method according to claim 25, further comprising:

identifying whether the frame denoted in the NACK control parameter is still available in a buffer of received media content;

calculating a delay measure when a NACK control parameter is received; and

retransmitting the frame from the buffer to the wireless host if it is identified within the buffer;

the delay measure not exceeding a threshold.

Claim 27 (Original): A method according to claim 25, wherein calculating the delay measure comprises:

identifying the start time of the frame denoted in the NACK control parameter; and

subtracting the start time from the current project time to quantitatively measure what kind of delay would be incurred by retransmitting the lost frames.

Claim 28 (Original): A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 19.

Claim 29 (Original): A computer comprising one or more computer-readable media having computer-executable instructions that, when executed by the computer, perform the method as recited in claim 19.

Claim 30 (Original): A transport layer protocol to facilitate streaming of media content across heterogeneous networks, the protocol comprising:

a congestion parameter, which provides a receiving network element with an measure of congestion incurred in transmission within the network;

a fading parameter which, when asserted, provides a receiving network element with an indication that a communicatively coupled wireless host just emerged from a fading condition; and

a BER parameter, which provides a receiving network element with an measure of bit error rate incurred in transmission within a wireless network.

Claim 31 (Original): A computer comprising a sender of the protocol as recited in claim 30.

Claim 32 (Original): A computer comprising a receiver of the protocol as recited in claim 30.

Claim 33 (Original): A transport layer protocol to facilitate streaming of media content across heterogeneous networks, the protocol generated in accordance with the following acts:

providing a server computer in a communications with a communications network;

receiving data using the protocol by way of the communications network, the protocol comprising:

a congestion parameter, which provides a receiving network element with an measure of congestion incurred in transmission within the network;

a fading parameter which, when asserted, provides a receiving network element with an indication that a communicatively coupled wireless host just emerged from a fading condition; and

a BER parameter, which provides a receiving network element with an measure of bit error rate incurred in transmission within a wireless network.